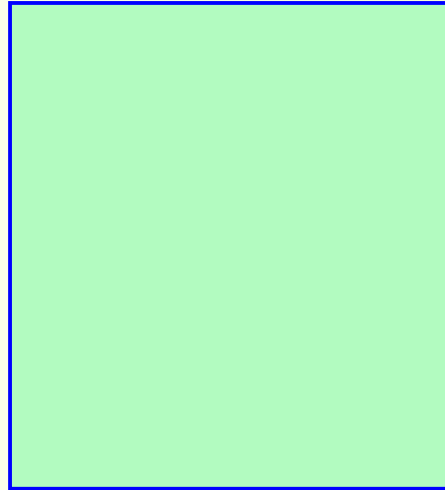


Alg. 2 Warm Up # 7-2

Find the inverse, graph and state the domain and range for both:

$$f(x) = -\sqrt{x-2} + 6$$



More Practice Ch. 6

Name _____

Change forms: $\log \longleftrightarrow \exp$

Per. _____

1) $\log_5(4x+7) = 2x$ 2) $(6x)^{4y} = x+1$

Solve. Exact & simplified.

3) $5^{x-8} = \left(\frac{1}{25}\right)^{2x}$
 $5^{x-8} = (5^{-2})^{2x}$

4) $3^x \cdot 9 = 3^{6x}$
 $3^x \cdot 3^2 = 3^{6x}$
 $3^{x+2} = 3^{6x}$

$$x = \frac{8}{5}$$

$$x = \frac{2}{5}$$

Solve. Round to hundredths place when needed.

$$5) \log_8 x = 2$$

change to
exponent
form

$$6) 4^x - 3 = 2$$

$$+3 \quad +3$$

$$7) \frac{6(3^x)}{6} = \frac{12}{6}$$

then take log both sides •

Answers

$$5) x = 64$$

$$6) x \approx 1.16$$

$$7) x \approx 0.63$$

Find the inverse equation.

$$8) f(x) = \sqrt[3]{x-3} + 8$$

$$9) g(x) = 2x^7 - 10$$

Answers:

$$8) f^{-1}(x) = (x-8)^3 + 3$$

$$9) g^{-1}(x) = \sqrt[7]{\frac{x+10}{2}}$$

10) Find the standard form equation of the parabola through $(-1, 2)$ $(3, -2)$ and $(5, -28)$

$$2 = a(-1)^2 + b(-1) + c$$

$$\textcircled{1} \quad a - b + c = 2$$

$$-2 = a(3)^2 + b(3) + c$$

$$\textcircled{2} \quad 9a + 3b + c = -2$$

$$-28 = a(5)^2 + b(5) + c$$

$$\textcircled{3} \quad 25a + 5b + c = -28$$

Eliminate c

$$\textcircled{3} - \textcircled{2} \rightarrow$$

$$\textcircled{2} - \textcircled{1} \rightarrow$$

$$y = -2x^2 + 3x + 7$$

Factor out the common monomial factor:

11. $16x^2 + 12x$

$$4x(4x + 3)$$

12. $42x^2y - 14xy^2$

$$14xy(3x - y)$$

13. $56x^2 - 8$

$$8(7x^2 - 1)$$

Factor completely:

14. $3x^2 - 9x - 12$

$$3(x^2 - 3x - 4)$$

$$3(x - 4)(x + 1)$$

15. $2x^3 - 98x$

$$2x(x^2 - 49)$$

$$2x(x + 7)(x - 7)$$

16. $2x^3y + 4x^2y^2$

$$2x^2y(x + 2y)$$

Simplify:

$$17. \frac{3x^3 - 12x}{x^2 + 7x + 10} \cdot \frac{x^2 + 4x - 5}{6x^2 - 12x}$$

$$\frac{\cancel{3}x(\cancel{x^2-4})}{(\cancel{x+5})(x+2)} \cdot \frac{(\cancel{x+5})(x-1)}{\cancel{6}x(x-2)}$$

$$\frac{x(\cancel{x+2})(\cancel{x-2})(x-1)}{(x+2)(\cancel{2x})(\cancel{x-2})}$$

$$\frac{\cancel{x}(x-1)}{\cancel{2x}}$$

$$\boxed{\frac{x-1}{2}}$$

$$18. \frac{2x^3 - x^2 - 3x}{2x^4 + 3x^3 + x^2} \cdot \frac{2x+1}{3}$$

$$\frac{\cancel{x}(2x^2 - x - 3)}{\cancel{x^2}(2x^2 + 3x + 1)} \cdot \frac{(2x+1)}{3}$$

$$\frac{(2x-3)(\cancel{x+1})(\cancel{2x+1})}{x(\cancel{2x+1})(\cancel{x+1})(3)}$$

$$\boxed{\frac{2x-3}{3x}}$$

19. Find the exponential equation through:
 (-2, 1.2) and (2, 19.2)

$$1.2 = ab^{-2}$$

$$\frac{19.2}{1.2} = \frac{ab^2}{ab^{-2}}$$

$$16 = b^4$$

$$b = 2$$

$$\boxed{\text{answer: } y = 4.8(2)^x}$$

Solve:

$$20. \quad \frac{3 \log(x+4)}{3} = \frac{6}{3}$$

$$\log(x+4) = 2$$

$$\begin{array}{r} 10^2 = x+4 \\ -4 \quad -4 \end{array}$$

$$96 = x$$

$$21. \quad \log_9 x + \log_9(x-8) = 1$$

condense first

$$\log_9(x^2 - 8x) = 1$$

$$9^1 = x^2 - 8x$$

$$0 = x^2 - 8x - 9$$

$$(x-9)(x+1)$$

$$x = 9, \quad \text{and } -1 \text{ (crossed out)}$$

HW: Ch. 7 Prep

Purple WS

#15) change 2nd fraction numerator to:

$$2x^2 + 9x - 5$$

